

REMARKS

Claims 1-20 are all the claims presently pending in the application. Claims 1-20 are amended to more clearly define the invention. Claim 1 is independent.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicants also note that, notwithstanding any claim amendments herein or later during prosecution, Applicants' intent is to encompass equivalents of all claim elements.

I. THE CLAIMED INVENTION

An exemplary embodiment of the claimed invention, as defined by, for example, independent claim 1, is directed to a cord type thermal fuse that includes a fuse core produced by winding a conductor meltable at a predetermined temperature around an insulating core member continuously elongating in the length direction of the insulating core member, and an insulating cover covering the outside of the insulating core member. The conductor can be broken by expanding the insulating core member at a predetermined temperature and/or by contracting the insulating cover at said predetermined temperature. The insulating core member comprises a gas-containing material.

Conventional core type thermal fuse have difficulties in accurately disconnecting (breaking) at predetermined temperatures.

The present invention includes an insulating core that includes a gas-containing material. In this manner, the fuse will accurately disconnect at a predetermined temperature.

II. THE 35 U.S.C. § 112, SECOND PARAGRAPH REJECTION

The Examiner alleges that claim 1 is indefinite. While Applicant submits that such would be clear to one of ordinary skill in the art to allow them to know the metes and bounds of the invention, taking the present Application as a whole, to speed prosecution claim 1 has been amended in accordance with Examiner Thomas's very helpful suggestions.

In view of the foregoing, the Examiner is respectfully requested to withdraw this rejection.

III. THE PRIOR ART REJECTIONS

A. The Oh reference rejections

Regarding the rejections of claims 1 and 4-6, the Examiner alleges that the Oh reference teaches the claimed invention and/or that it would have been obvious to modify the Oh reference to provide the claimed invention. Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by the Oh reference.

None of the applied references teaches or suggests the features of the claimed invention including an insulating core that includes a gas-containing material. As explained above, this feature is important for accurately disconnecting at a predetermined temperature.

Rather, and in stark contrast, the Oh reference discloses a fuse wire assembly 360 with a support core 362 that is made of yarn (col. 4, lines 41-55). The Oh reference does not teach or suggest that the support core 362 includes a gas-containing material.

Indeed, the Examiner does not allege that the Oh reference discloses or suggests the claimed feature.

Therefore, the Oh reference does not teach or suggest each and every element of the claimed invention and the Examiner is respectfully requested to withdraw this rejection of claims 1 and 4-6.

B. The Oh reference in view of the Kaltenborn et al. reference

Regarding the rejection of claims 2-3, 7-8, and 10-15, the Examiner alleges that the Kaltenborn et al. reference would have been combined with the Oh reference to form the claimed invention. Applicants submit, however, that these references would not have been combined and, even if combined, the combination would not teach or suggest each and every element of the claimed invention.

None of the applied references teaches or suggests the features of the claimed invention including an insulating core that includes a gas-containing material. This feature is important for accurately disconnecting at a predetermined temperature.

As explained above, the Oh reference clearly does not teach or suggest this feature.

The Kaltenborn et al. reference does not remedy the deficiencies of the Oh reference.

Rather, and in stark contrast, the Kaltenborn et al. reference discloses a supporting body 2 that is "composed of a ceramic or else plastic or a composite material or else of some

suitable electrically insulating material." ([0022]). The Kaltenborn et al. reference does not teach or suggest an insulating core that includes a gas-containing material as recited by the claims.

The Office Action refers to paragraphs [0032]-[0033]. These paragraphs describe that the fuse element 6, not the support body 2, includes a combustible material which creates gas upon combustion. The fuse element 6 clearly is not an insulating core as claimed.

Clearly, the Kaltenborn et al. reference does not teach or suggest an insulating core that includes a gas-containing material as claimed.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims 2-3, 7-8, and 10-15.

C. The Oh reference in view of the Cieplik et al. reference

Regarding the rejection of claims 9 and 18-20, the Examiner alleges that the Cieplik et al. reference would have been combined with the Oh reference to form the claimed invention. Applicants submit, however, that these references would not have been combined and, even if combined, the combination would not teach or suggest each and every element of the claimed invention.

None of the applied references teaches or suggests the features of the claimed invention including an insulating core that includes a gas-containing material. This feature is important for accurately disconnecting at a predetermined temperature.

As explained above, the Oh reference clearly does not teach or suggest this feature.

The Cieplik et al. reference does not remedy the deficiencies of the Oh reference.

Rather, and in stark contrast, the Cieplik et al. reference discloses an electrical fuse element that is not a cord type thermal fuse and, therefore, does not include any insulating core at all. Therefore, the Cieplik et al. reference does not teach or suggest the features of the claimed invention including an insulating core that includes a gas-containing material.

Indeed, the Examiner does not allege that the Cieplik et al. reference discloses this feature.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims 9 and 18-20.

D. The Oh reference in view of the Kaltenborn et al. reference and in further

view of the Cieplik et al. reference

Regarding the rejection of claims 16-17, the Examiner alleges that the Kaltenborn et al. reference would have been combined with the Oh reference and that the Cieplik et al. reference would have been combined with the Oh reference and the Kaltenborn et al. reference to form the claimed invention. Applicants submit, however, that these references would not have been combined and, even if combined, the combination would not teach or suggest each and every element of the claimed invention.

As explained above, none of the applied references teaches or suggests the features of the claimed invention including an insulating core that includes a gas-containing material. This feature is important for accurately disconnecting at a predetermined temperature.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims 16-17.

IV. FORMAL MATTERS AND CONCLUSION

The Office Action objects to the specification for the use of the word "code" throughout the specification. This Amendment encloses a Substitute Specification which substitutes the term "core" for all occurrences of the term "code" within the specification and corrects other typographical errors in accordance with the Examiner Thomas's very helpful suggestion.

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 1-20, all the claims presently pending in the Application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

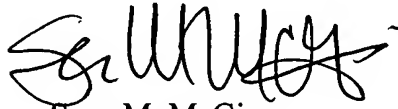
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DOCKET NO. PCT/JP2003/007516

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully submitted,



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7/24/07

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